

Penaeid prawn resources along the east coast of India during 1991-2011

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The east coast of India with a coast line of 2,688 km and continental shelf area of about 0.56 million km², provides a good habitat for the penaeid prawns in the adult phase. There are five major perennial rivers, number of creeks and low-lying areas offering nursery grounds for post larvae and juveniles that migrate to the sea after completion of nursery phase to get recruited to the fishery. Though as many as 23 species of penaeids are recorded along the east coast only about 19 species are supporting the regular fishery.

Craft&gear

Trawl nets are the major gear which is exploiting more than 90% of penaeid prawn along the east coast. Trawlers are of different types depending on the size of the boat, engine capacity and size of the gear. These are Pablo (9.14 m), Royya (9.75-10 m), Sorrah (11.4 m) and Sona (13.1 m) boats. The major fishing harbours/ landing centres, which are bases for operation of trawlers are Diamond harbor, Digha, Paradeep, Visakhapatnam, Kakinada, Chennai, Mandapam and Tuticorin. Besides these trawlers, *Thalluvalai* along the Tamil Nadu coast and stake nets along the Andhra Pradesh coast are also operated for exploitation of juvenile prawns in shallow coastal waters, estuaries, creeks and backwaters.

Penaeid prawn landings

Penaeid prawns, on average, contributed 9.8% of annual total marine fish landings along the east coast and their contribution ranged from 5.5% to 13.8% during 1991 - 2011. On an average, east coast, contributed 29% of total penaeid prawn catch of India and its share ranged from 17.4% to 41.2% during the 21 years period. Average annual catch was 86,969 t and it ranged from 33,131 t in 1991 to

2,19,054 t in 2011. During 1991-2000 catch has fluctuated with 0.054 compound annual growth rate whereas during 2001-2010 sharp increase in catch was recorded with 0.156 compound annual growth rate. Overall increasing trend was observed during 21 years period (Fig.1). Average instead of mean state wise contribution of penaeid prawns shows Tamil Nadu contributed the highest (32%) followed by Andhra Pradesh (26%), West Bengal (22%), Odisha (19%), and Puducherry (1%). The highest catch was recorded from West Bengal and Odisha in 2011, from Andhra Pradesh in 2010 and from Tamil Nadu and Puducherry in 2009. The lowest catch was registered from West Bengal, Odisha, Andhra Pradesh in 1991, from Tamil Nadu in 2001 whereas from Puducherry it was in 1997 (Table1). West Bengal has the highest compound annual growth rate (0.211) followed by Odisha (0.192), Andhra Pradesh (0.056) and Tamil Nadu (0.033) during 21 years period, whereas Puducherry showed negative compound annual growth rate (-0.006). All states

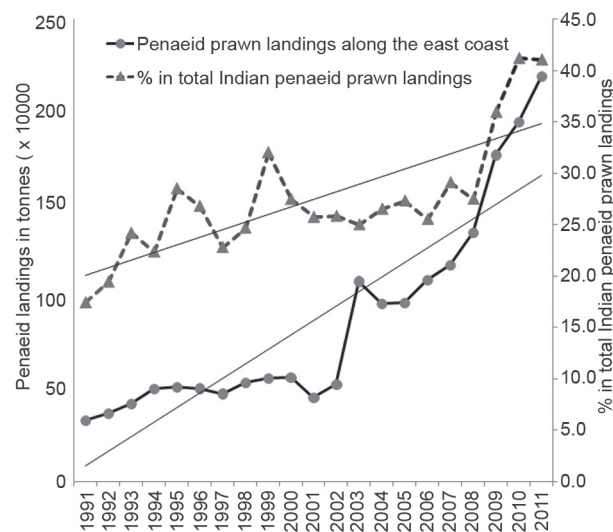


Fig. 1. Trends in penaeid landings and its share in total penaeid landings along the east coast

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including Puducherry had higher compound annual growth rates during 2001-2010 than those during 1991-2000.

Species Composition

Species composition of penaeid prawn catches along the east coast was computed using the species composition data collected at Paradeep,

Visakhapatnam, Kakinada, Chennai, Mandapam and Tuticorin fishing harbours/ landing centres. Among the 23 species recorded 19 species had supported theregular fishery (Table 2). *Metapenaeus dobsoni* dominated the catch by contributing 21.4% followed by *M. monoceros* (3.2%), *Metapenaeopsis* spp (9.4%), *Penaeus semisulcatus* (9.2), *Fenneropenaeus indicus* (7.5%), *Parapenaeopsis maxillipedo* (4.3%),

Table 2. Common name and local names in four regional languages for penaeid prawns along the east coast

S.No.	Species	Common Name	Local name			
			Bengali	Oriya	Telugu	Tamil
1	<i>Metapenaeus dobsoni</i>	Kadalshrimp	Garangchingri	Khopra, Ranichingudi	Chinkiroyya	Chemakkaraeral
2	<i>Metapenaeus monoceros</i>	Speckled shrimp	Kara chingri	Khopra, Ranichingudi	Chakuroyya/ Kalandhan	Valuchaeral
3	<i>Penaeus semisulcatus</i>	Green tiger prawn	Bagda	Bagada, Katlareyya	Nooneroyya	Varieral
4	<i>Peneaus indicus</i>	Indian white shrimp	Chapra	Chapda, Tellareyya	Tellaroyya/ Narran	Vellaeral/ Vellaieral
5	<i>Metapenaeus affinis</i>	Jingashrimp	Chamneychingri	Khopra, Kalireyya	Gullaroyya/ Keliroyya	Chayavaluchaeral
6	<i>Penaeus monodon</i>	Giant tiger shrimp	Keleghari, Bagda	Bagada, Katlareyya	Katlaroyya	Karuvanduerel/ Kathambaeral
7	<i>Penaeus merguensis</i>	Banana shrimp		Chapda, Pettireyya	Kalliroyya	Vellaeral/ Vellaieral
8	<i>Parapenaeopsis styliifera</i>	Kiddi shrimp	Matka	Koddi, gullareyya	Gullaroyya / Karrkadi	Vanduerel
9	<i>Parapenaeopsis hardwickii</i>	Spear shrimp	Lalchingri	Khodi, gullareyya	Gullaroyya/ Karrkadi	Vanduerel
10	<i>Metapenaeus lysianassa</i>	Bird shrimp	—	—	—	Vellaiveluchaeral
11	<i>Solenocera spp.</i>	Coastal mudshrimp	—	Nallichingudi, Errareyya	Kukkaroyya	Kalleral
12	<i>Metapenaeopsis spp.</i>	Fiddler shrimp/ Velvet shrimp	—	—	Gullaroyya	Pottuerel
13	<i>Parapenaeopsis maxillipedo</i>	Torpedo shrimp	—	—	Gullaroyya	Karikkada/ Vanduerel
14	<i>Parapenaeopsis uncta</i>	Uncta shrimp	—	—	Gullaroyya	Vanduerel
15	<i>Trachypenaeus spp.</i>	Rough shrimp	—	—	Garukugullaroyya	Vanduerel
16	<i>Metapenaeus moyebi</i>	Moyebi shrimp	—	—	—	—
17	<i>Parapenaeus longipes</i>	Flamingo shrimp	—	—	—	Thattaieral
18	<i>Metapenaeus brevicornis</i>	Yellow shrimp	Chamneychingri	Khopra, Kali reyya	Pasupuroyya / Puvvalin	Manjavalucheral
19	<i>Penaeus japonicus</i>	Kuruma shrimp	Kaonra, Pamra	Bagada, Katlareyya	Kalliroyya	Kathampaeral
20	Other penaeids	—	—	—	—	—

Table 3. Species composition of penaeid landings by weight(t) along the east coast

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Average	%
1 <i>Metapenaeus dobsoni</i>	6581	7592	10200	11423	9521	11281	9044	13867	11986	10670	8035	9064	10217	21.4
2 <i>Metapenaeus monoceros</i>	3384	3540	4818	5611	6636	5361	5647	8744	10111	8854	5971	6619	6271	13.2
3 <i>Peneaus misulcatus</i>	4524	4851	4332	3476	2503	5080	5520	4613	4347	4578	3644	4838	4382	9.2
4 <i>Peneaus indicus</i>	2926	3130	2928	4402	4116	3654	3412	4361	3262	3485	2769	3519	3568	7.5
5 <i>Metapenaeus affinis</i>	1000	1119	1558	1171	2297	1484	1275	1152	1498	2048	2407	2638	1460	3.1
6 <i>Peneaus monodon</i>	404	426	592	1389	734	811	616	667	791	966	791	961	739	1.6
7 <i>Peneaus merguensis</i>	270	298	133	177	184	174	173	156	195	308	322	357	207	0.4
8 <i>Parapenaeopsis stylifera</i>	484	671	1321	2379	2288	2210	2418	2173	2398	2525	2512	2754	1887	4.0
9 <i>Parapenaeopsis hardwickii</i>	300	509	1444	819	2185	1962	2122	2119	2557	3483	3801	4224	1750	3.7
10 <i>Metapenaeus lysianassa</i>	637	1054	372	726	1271	796	762	528	821	1175	1269	1408	814	1.7
11 <i>Solenocera</i> spp.	452	545	1738	1650	2678	2358	1705	1982	2995	3278	2938	3241	1938	4.1
12 <i>Metapenaeopsis</i> spp.	4634	4999	3644	4144	5494	5104	4732	4202	3884	4015	3426	4165	4485	9.4
13 <i>Parapenaeopsis maxillipedo</i>	1264	1363	1551	3730	2853	2079	1822	2551	1829	1627	1227	1633	2067	4.3
14 <i>Parapenaeopsis suncta</i>	201	217	343	524	592	570	500	489	494	459	425	508	439	0.9
15 <i>Trachypenaeus</i> spp.	1459	1574	1538	2596	2770	2401	1830	1932	1741	1949	1287	1697	1979	4.2
16 <i>Metapenaeus moyebi</i>	264	284	689	1391	1449	2014	2409	677	2008	921	518	665	1211	2.5
17 <i>Parapenaeus longipes</i>	22	24	615	674	794	36	386	395	400	1123	693	758	447	0.9
18 <i>Metapenaeus brevicornis</i>	0	0	720	1111	661	681	669	1167	827	1571	978	989	741	1.6
19 <i>Penaeus japonicus</i>	0	0	77	92	55	47	51	37	42	64	44	44	47	0.1
20 Other penaeids	4327	4702	3306	2757	1980	2280	2485	1650	3619	2961	2404	2609	3007	6.3
Total	33131	36898	41919	50241	51061	50383	47577	53460	55805	56061	45462	52690	47654	100.0

Trachypenaeus spp (4.2%), *Solenocera* spp (4.1%), *Parapenaeopsis* *tylifera* (4%), *P.hardwickii* (3.7%), *M. affinis* (3.1%), *M. moyebi* (2.5%), *M. lysiansa* (1.7%), *P. monodon* (1.6%), *M. brevicornis* (1.6%) and *Parapenaeus longipes*. *M. brevicornis* has emerged as a regular species from 1993 onwards. Contribution of *P. stylifera*, *P. hardwickii*, *Solenocera* spp, *P. longipes* and *M. moyebi* had significantly increased from 1993 onwards. Threefold increase in the catch of *P. monodon* was observed in 1994 and thereafter its contribution was more or less stable. Contribution of *F. indicus*, *M. dobsoni*, *M. monoceros* and *P. maxillipedo* were gradually increased up to 1994 and since then their status was maintained.

West Bengal and Odisha: About 11 species supported the fishery of which *P. hardwickii* (24.1%) dominated followed by *M. dobsoni* (18.5%), *P. stylifera* (11.7%), *M. lysianassa* (10.4%), *Solenocera* spp (7.9%) and *M. monoceros* (6.6%). Commercial species like *P. monodon*, *F. indicus* and *P. merguensis* contributed only in low quantities (Table4).

Andhra Pradesh: About 18 species supported the fishery. *M. dobsoni* (19.1%) dominated followed by *M. monoceros* (25.2%), *Solenocera* spp. (7.1%), *M. brevicornis* (4.8%) *P. stylifera* (4.1%), *F. indicus* (3.8%), *M. affinis* (3.3%), and *M. spp* (3.0%). Other highly commercial species like *P. monodon* (1.8%), *P. semisulcatus* (1.3%) and *P. merguensis* (0.6%) were contributed in low volumes only.

Tamil Nadu and Puducherry: About 16 species contributed to the fishery. *P. semisulcatus* contributed high (17.3%) followed by others (16.2%), *M. dobsoni*(15.8%), *P. indicus*(11.8%), *P. maxillipedo* (8.1%), *Trachypenaeus* spp (7.7%), *M. monoceros* (6.9%), and *M. moyebi*(4.5%). The commercial species like *P. monodon* (1.7%) and *P. merguensis* (0.04%) were contributed in low quantities.

This is the first report on species composition of penaeid prawn landings along the east coast of India from different maritime states such as West Bengal, Odisha, Andhra Pradesh, Tamil Nadu and Puducherry. Species composition, size range and modal groups of both sexes of commercial species at different fishing harbours/landing centres of present report can be utilized for future comparative studies.

Table 4. Species wise landings (t) of penaeid prawns along West Bengal and Odisha coasts

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total	Mean	%
<i>Metapenaeus dobsoni</i>	1151	1951	1377	849	1201	1386	1105	1057	1178	1617	1863	2079	16814	1401	18.5
<i>Metapenaeus monoceros</i>	114	193	293	113	305	377	329	416	533	961	1107	1236	5978	498	6.6
<i>Penaeus semisulcatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Penaeus indicus</i>	73	124	11	5	17	15	17	22	28	82	94	105	594	50	0.7
<i>Metapenaeus affinis</i>	128	218	695	551	1349	819	824	553	685	1373	1582	1766	10543	879	11.6
<i>Penaeus monodon</i>	11	18	38	22	35	30	50	51	72	151	174	195	848	71	0.9
<i>Penaeus merguensis</i>	33	55	29	25	78	58	101	114	151	261	301	335	1542	128	1.7
<i>Parapenaeopsis stylifera</i>	242	410	554	402	1166	966	839	631	852	1323	1524	1701	10610	884	11.7
<i>Parapenaeopsis hardwickii</i>	300	509	929	486	1906	1638	1590	1630	2112	3147	3626	4047	21921	1827	24.1
<i>Metapenaeus lysianassa</i>	597	1011	234	443	1123	722	625	415	715	1032	1189	1327	9432	786	10.4
<i>Solenocera</i> spp.	102	173	289	160	1096	819	343	376	507	972	1119	1249	7205	600	7.9
<i>Metapenaeopsis</i> spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Parapenaeopsis maxillipedo</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Parapenaeopsis uncta</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Trachypenaeus</i> spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Metapenaeus moyebi</i>	0	0	0	0	0	0	0	0	0	0	133	149	282	23	0.3
<i>Parapenaeus longipes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Metapenaeus brevicornis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Penaeus japonicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Other penaeids	444	752	1291	710	426	524	173	134	195	265	171	191	5277	440	5.8
Total	3195	5415	5740	3767	8702	7356	5996	5399	7027	11183	12885	14381	91046	7587	100.0

Table 5. Species wise landings (t) of penaeid prawns along the Andhra Pradesh coast

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total	Mean	%
<i>Metapenaeus dobsoni</i>	2871	2881	5669	4264	3573	5904	4120	6758	7297	5675	3903	3944	56859	4738	29.1
<i>Metapenaeus monoceros</i>	2414	2422	3195	3058	4086	3311	3607	6173	8104	6016	3443	3479	49310	4109	25.2
<i>Penaeus semisulcatus</i>	397	399	290	340	170	78	160	113	132	204	135	136	2553	213	1.3
<i>Penaeus indicus</i>	952	956	705	458	686	596	455	485	497	581	517	523	7413	618	3.8
<i>Metapenaeus affinis</i>	510	511	674	571	496	455	299	421	678	410	708	716	6449	537	3.3
<i>Penaeus monodon</i>	216	217	285	1010	328	257	184	74	302	242	184	186	3485	290	1.8
<i>Penaeus merguensis</i>	184	185	105	152	106	114	70	41	42	48	21	21	1089	91	0.6
<i>Parapenaeopsis stylifera</i>	0	0	612	1006	664	616	1008	772	954	825	821	830	8107	676	4.1
<i>Parapenaeopsis hardwickii</i>	0	0	515	333	279	324	531	488	445	336	175	177	3603	300	1.8
<i>Metapenaeus lysianassa</i>	0	0	120	225	84	74	138	113	106	143	80	81	1162	97	0.6
<i>Solenocera</i> spp.	68	68	1418	1228	1404	1121	982	1052	2064	1750	1352	1366	13871	1156	7.1
<i>Metapenaeopsis</i> spp.	0	0	377	396	105	509	223	322	549	827	1290	1304	5900	492	3.0
<i>Parapenaeopsis maxillipedo</i>	0	0	0	0	0	0	0	0	0	26	36	36	99	8	0.1
<i>Parapenaeopsis uncta</i>	0	0	0	0	0	0	0	0	0	182	188	190	560	47	0.3
<i>Trachypenaeus</i> spp.	0	0	16	0	143	0	0	0	0	127	86	86	458	38	0.2
<i>Metapenaeus moyebi</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Parapenaeus longipes</i>	0	0	187	34	148	36	6	41	128	873	518	524	2496	208	1.3
<i>Metapenaeus brevicornis</i>	0	0	720	1111	661	681	669	1167	827	1571	978	989	9373	781	4.8
<i>Penaeus japonicus</i>	0	0	77	92	55	47	51	37	42	64	44	44	553	46	0.3
Other penaeids	3147	3158	1234	1237	876	1015	1691	954	2800	2672	1742	1760	22284	1857	11.4
Total	10759	10797	16200	15513	13863	15138	14193	19011	24967	22573	16221	16391	195626	16302	100.0

Table 6. Species wise landings (t) of penaeid prawns along the Tamil Nadu and Puducherry coasts

Species	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total	Mean	%
<i>Metapenaeus dobsoni</i>	2559	2760	3154	6309	4748	3991	3819	6052	3511	3378	2269	3041	45593	3799	15.8
<i>Metapenaeus monoceros</i>	857	924	1330	2439	2245	1673	1711	2154	1474	1877	1421	1904	20008	1667	6.9
<i>Penaeus semisulcatus</i>	4127	4452	4041	3137	2332	5002	5359	4500	4215	4375	3509	4702	49752	4146	17.3
<i>Penaeus indicus</i>	1900	2050	2211	3938	3413	3043	2940	3854	2736	2822	2157	2891	33957	2830	11.8
<i>Metapenaeus affinis</i>	361	390	190	50	452	209	152	178	135	265	117	157	2655	221	0.9
<i>Penaeus monodon</i>	176	190	269	357	371	523	381	542	417	573	433	580	4813	401	1.7
<i>Penaeus merguensis</i>	54	58	0	0	0	2	2	0	1	0	0	0	117	10	0.04
<i>Parapenaeopsis stylifera</i>	242	261	155	972	458	628	571	769	593	377	166	223	5415	451	1.9
<i>Parapenaeopsis hardwickii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Metapenaeus lysianassa</i>	40	43	18	58	65	0	0	0	0	0	0	0	224	19	0.1
<i>Solenocera</i> spp.	282	304	31	262	178	418	380	554	424	555	467	626	4483	374	1.6
<i>Metapenaeopsis</i> spp.	4634	4999	3268	3748	5389	4595	4509	3881	3335	3188	2136	2862	46543	3879	16.2
<i>Parapenaeopsis maxillipedo</i>	1264	1363	1551	3730	2853	2079	1822	2551	1829	1601	1191	1597	23430	1952	8.1
<i>Parapenaeopsis suncta</i>	201	217	343	524	592	570	500	489	494	277	237	318	4760	397	1.7
<i>Trachypenaeus</i> spp.	1459	1574	1522	2596	2627	2401	1830	1932	1741	1823	1202	1611	22318	1860	7.7
<i>Metapenaeus moyebi</i>	264	284	689	1391	1449	2014	2409	677	2008	921	385	516	13008	1084	4.5
<i>Parapenaeus longipes</i>	22	24	428	640	646	0	380	354	272	250	174	234	3425	285	1.2
<i>Metapenaeus brevicornis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
<i>Penaeus japonicus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Other penaeids	736	792	781	810	678	740	621	561	625	24	491	658	7516	626	2.6
Total	19177	20686	19979	30961	28496	27889	27388	29050	23811	22305	16356	21919	288017	24001	100.0

Table 7. Size range (mm) and mode (mm) of commercial species of penaeid prawns at different landing centres along the east coast.

Landing centre & species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Paradeep										
<i>P. monodon</i>										
Male	91-250	210-220	91-240	201-210	211-220	211-220	211-220	211-220	201-210	0
Female	91-300	241-250	91-300	241-250	241-250	241-250	241-250	211-220	201-210	0
<i>P. merguensis</i>										
Male	116-170	146-150	116-180	141-145	111-170	146-150	111-170	146-150	111-170	0
Female	116-205	161-165	121-195	151-155	111-195	161-165	111-200	161-165	111-215	0
<i>M. affinis</i>										
Male	71-105	116-120	66-155	106-110	66-160	111-115	71-155	111-115	71-160	0
Female	71-185	131-135	66-180	126-130	71-185	126-130	71-185	126-130	71-185	0
<i>M. monoceros</i>										
Male	76-140	121-125	81-145	111-115	76-145	111-115	71-140	116-120	81-150	0
Female	76-195	131-135	76-185	136-140	71-190	136-140	71-170	131-135	71-185	0
<i>M. dobsoni</i>										
Male	0	0	0	0	46-100	76-80	46-100	66-70	41-100	0
Female	0	0	0	0	51-115	91-95	41-110	81-85	76-80	0

Visakhapatnam																				
<i>M.monoceros</i>																				
Male	76-160	111-115	86-185	126-130	86-170	126-130	86-170	0	86-165	126-130	93-168	121-125	93-168	121-125	98-178	136-140	81-180	136-140	71-175	136-140
Female	81-200	146-150	86-210	146-150	96-205	161-165	96-200	0	86-200	141-145	93-203	146-150	93-208	141-145	83-203	161-165	91-215	161-165	71-205	131-135
<i>P.indicus</i>																				
Male	111-195	161-165	101-200	146-150	121-195	166-170	121-195	0	121-205	161-165	103-198	166-170	113-193	156-160	113-193	161-165	126-190	156-160	121-195	151-155
Female	116-210	181-185	81-210	166-170	131-230	186-190	131-230	0	121-215	166-170	123-208	186-190	128-238	166-170	113-238	186-190	121-205	151-155	106-205	166-170
<i>P.semislucatus</i>																				
Male	0	0	0	0	126-215	181-185	0	0	0	0	133-223	171-175	113-228	176-180	0	0	111-200	166-170	101-240	176-180
Female	0	0	0	0	131-250	231-235	0	0	0	0	138-238	201-205	93-238	211-215	0	0	106-255	191-195	106-260	206-210
Kakinada																				
<i>M.monoceros</i>																				
Male	46-165	81-85	0	0	41-145	86-90	0	0	51-160	66-70	46-170	91-95	46-130	81-85	51-145	86-90	51-130	81-85	46-135	81-85
Female	41-175	76-80	0	0	36-180	86-90	0	0	46-190	76-80	46-185	91-95	41-155	81-85	51-165	86-90	51-160	86-90	46-170	91-95
<i>Pindicus</i>																				
Male	76-185	126-130	0	0	86-180	116-120	0	0	81-180	121-130	81-180	131-140	81-170	131-140	71-180	121-130	81-170	121-130	81-180	121-130
Female	51-215	121-125	0	0	81-200	126-130	0	0	51-200	121-130	81-270	131-140	71-190	131-140	71-200	121-130	81-180	121-130	81-190	121-130
<i>Pmonodon</i>																				
Male	91-260	181-190	0	0	86-230	156-160	0	0	101-230	171-180	101-250	161-170	91-220	181-190	81-240	151-160	101-240	151-160	91-230	131-140
Female	91-300	181-190	0	0	101-270	161-165	0	0	101-280	191-200	81-270	161-170	91-240	181-190	101-300	151-160	111-280	161-170	91-290	151-160
<i>M.dobsoni</i>																				
Male	41-105	66-70	0	0	41-100	66-70	0	0	0	0	41-100	76-80	31-100	66-70	31-95	66-70	41-90	66-70	41-90	66-70
Female	41-115	76-80	0	0	41-110	76-80	0	0	0	0	41-110	76-80	41-110	66-70	31-115	81-85	41-110	81-85	36-115	66-70
Chennai																				
<i>M.dobsoni</i>																				
Male	46-105	71-75	46-150	71-75	46-105	81-85	0	0	0	0	0	0	46-110	66-70	0	0	0	0	46-110	61-65
Female	46-110	81-85	46-110	86-90	41-105	86-90	0	0	0	0	0	0	41-115	66-70	0	0	0	0	41-115	61-65
<i>Pmaxillipedo</i>																				
Male	46-105	81-85	41-105	76-80	46-105	71-75	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Female	46-105	81-85	41-115	81-85	41-115	86-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mandapam																				
<i>P.semislucatus</i>																				
Male	76-200	126-130	76-165	116-120	86-160	116-120	91-155	111-115	81-150	106-110	91-150	116-120	86-150	106-110	91-160	116-120	96-160	111-115	96-150	121-125
Female	71-215	131-135	76-205	126-130	86-200	116-120	96-200	141-145	86-200	126-130	96-200	126-130	86-190	116-120	91-205	136-140	96-205	126-130	101-200	126-130
Tuticorin																				
<i>P.semislucatus</i>																				
Male	101-172	0	95-188	0	86-175	126-130	0	0	96-160	121-125	0	0	0	0	0	0	0	0	96-190	116-120
Female	91-226	0	106-205	0	86-235	161-165	0	0	96-225	161-165	0	0	0	0	0	0	0	0	101-235	151-155